

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant:	Richard E. Raby and Nicholas A. Stark	Confirmation No.	3710
Serial No.:	10/771,641	Customer No.:	32692
Filed:	February 04, 2004	Group Art Unit:	3732
Examiner:	Michael Robert Ballinger		
Docket No.:	59525US002  (1004-100US01)		
Title:	<b>PLANAR GUIDES TO VISUALLY AID ORTHODONTIC APPLIANCE PLACEMENT WITHIN A THREE-DIMENSIONAL (3D) ENVIRONMENT</b>		

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**DECLARATION UNDER 37 C.F.R. 1.132**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

I, Richard E. Raby, declare as follows:

1. I am a named inventor in above-referenced Patent Application Serial No. 10/771,641.
2. I am an employee of 3M Company Incorporated.
3. I received a Bachelor of Science in Computer Science from the University of Minnesota in 1996.
4. I have been working in the 3M Unitek division of 3M Company Incorporated for approximately four years. 3M Unitek is a subsidiary that is focused on the design and manufacture of orthodontic products, such as orthodontic appliances and digital orthodontic products.

5. I have been working exclusively on digital orthodontic products for 3M Company Incorporated for the past eight years.

6. In my opinion, a button and a sheath are well known types of orthodontic appliances that have been used for at least the past twenty years in industry.

7. The Glossary of Orthodontic Terms by John Daskalogiannakis, DDS, MSc. (Quintessence Publishing Co., Berlin, 2000) demonstrates that a button and a sheath are well known types of orthodontic appliances. Page 58 of the Glossary (Exhibit A) describes an orthodontic button, and page 247 (Exhibit B) describes an orthodontic sheath.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: 10/19/2009

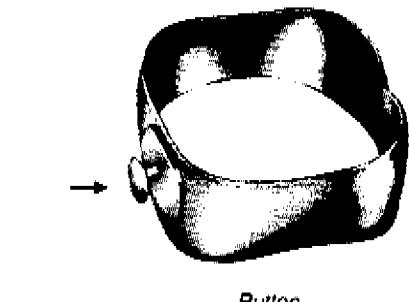
Signed: 

Richard E. Raby

## Burstone's geometry classes, Geometry VI

**Geometry VI** In this geometry the two brackets are tipped towards each other by an equal amount ( $\theta_A/\theta_B = -1$ ). The force system created consists of equal and opposite moments at the two brackets. No forces are generated.  $\Sigma M$ , the sum of all the moments, is equal to zero and the ratio  $M_A/M_B$  is equal to -1.

**Button** A small, mushroom-shaped orthodontic attachment that can be bonded directly onto a tooth or welded on a band. Buttons are mainly used as handles for elastic traction. [Also see Attachment, Orthodontic.]



Button

**Bypass arch** See Arch, Bypass.

**C** See Cephalic Cervical po:

**C-clasp** See C

**Calculus (Ta**  
plaque, str  
face. Acco  
two genera  
gingival.

**Calotasis** See

**Callus** The new  
varying am  
and bone)  
fragments v

**Callus distract**  
esis.

**Camouflage** t  
treatment o  
mild to mod  
which achi  
(Class I ca  
overjet and  
certain teeth  
This type of  
only if it wi  
facial esthe  
or orthogn  
or not accel  
teeth provid  
remaining t  
plane of si  
transverse  
benefit fro  
Similarly, if  
excessive ir

Sign

position during the finishing stage of treatment with a rectangular archwire. Shortly after the appliances have been removed, the teeth "settle" into position by re-establishing occlusal contacts with their antagonist and adjacent teeth until an equilibrium is reached.

Settling can be facilitated during the finishing stages of treatment by replacing the heavy rectangular archwires with light round ones that provide some freedom for movement of the teeth, possibly with the added use of some light posterior vertical elastics. Some clinicians prefer to remove part of the fixed appliances (usually from the posterior teeth) a few weeks prior to the insertion of retainers, to allow for some spontaneous settling of the teeth into their final occlusion.

**Setup, Bracket** See Bracket setup.

**Setup, Diagnostic** See Diagnostic setup.

**Shape memory** A property of certain alloys (such as some nickel-titanium alloys) that will permit shaping at a higher temperature, followed by a deformation at a lower temperature and return to the original shape by reheating.

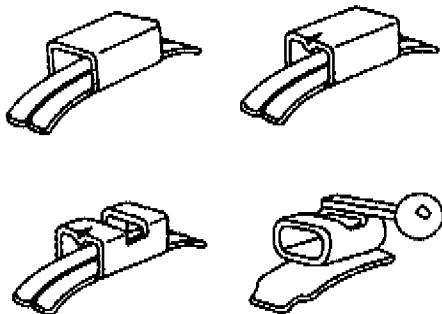
**Sharpey's fibers** See Periodontal ligament Fibers.

**Shear** The internal resistance to a force trying to slide one portion of a body over another. [Also see Stress, Shear.]

**Shear deformation** A change in shape as a result of shear stress. (In the finite element example, shear deformation of a rectangular element would cause it to assume the shape of a parallelogram.)

**Shear stress** See Stress, Shear.

**Sheath** An orthodontic attachment in the form of a tube, usually welded to the lingual or palatal surface of molar bands for insertion of fixed/removable palatal arches



Sheaths

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(e.g. TPA, Quad-helix) or mandibular lingual arches. A sheath is designed to accept a 0.030-inch (0.76-mm) or 0.036-inch (0.90-mm) round wire doubled upon itself. Sheaths sometimes carry gingivally directed ball hooks to allow ligation of the wire in place and/or latch indents (*Dillon dimples*) to increase retention of the wire in the sheath. [Also see Dillon dimple.]

**Shedding** See Exfoliation.

**Shield, Soft tissue** See Soft tissue shield.

**Shield, Vestibular** See Appliance, Vestibular shield.

**Shift, Mandibular** See Mandibular shift.

**Shift, Midline** See Midline discrepancy.

**SI** See International System of Units.

**Siamese bracket** See Bracket, Twin.

**Side-winder spring** See Appliance, Tip-edge.

**Sign (of a disease or disorder)** Objective evidence of the disease or disorder, as perceived by an examiner. [Compare with Symptom.]

5  
h large tooth size  
es. [Compare with  
Modified from the  
facial Orthopedic

ger See Ortho-  
cinated amalgam-

•) An orthognathic aiming at sagittal split of the mandible, most often is a general sagittal split (O) or a transoral (TOVRO), but a variety of procedures in certain situations, movement of the man-

st meticulous and  
is very likely that  
in their most stable